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ROCKS and MINERALS

A Magazine for Mineralogists,
Geologists and Collectors



Official Journal of the Rocks and Minerals Association

April, 1942

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Whole No. 129

THE ROCKS AND MINERALS ASSOCIATION

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Organized in 1928 for the increase and dissemination of mineralogic knowledge

To stimulate public interest in geology and mineralogy and to endeavor to have courses in these subjects introduced in the curricula of the public school systems; to revive a general interest in minerals and mineral collecting; to instruct beginners as to how a collection can be made and cared for; to keep an accurate and permanent record of all mineral localities and minerals found there and to print same for distribution; to encourage the search for new minerals that have not yet been discovered; and to endeavor to secure the practical conservation of mineral localities and unusual rock formations.

Ever since its foundation in 1928, the Rocks and Minerals Association has done much to promote the interest in mineralogy. It has sponsored outings, expeditions, formations of mineralogical clubs and the printing of many articles that have been a distinct contribution to mineralogy.

Those of our readers who are members of the Association can rightly feel that they too were sponsors of these many achievements that have helped to give mineralogy a national recognition. Among your friends there must be many who would like to have a part in the Association's work—to share with you the personal satisfaction, the pleasure, and the benefits of membership. Will you give your friends this opportunity to join the Association by nominating them for membership?

Each new member helps to extend the

Association's activities—helps to make your magazine larger, better, and more interesting, and above all assists in the dissemination of mineralogical knowledge.

Some advantages of memberships: All members in good standing receive:

- (1) **Rocks and Minerals**, a monthly magazine.
- (2) A member's identification card that secures the privileges of many mines, quarries, clubs, societies, museums, libraries.
- (3) The right to participate in outings and meetings arranged by the Association.
- (4) the right to display a certificate of membership and to place after their names a designation indicating their membership or to advertise membership on stationery, etc.
- (5) The distinction and the endorsement which comes from membership in the world's largest mineralogical society.

Mineralogical clubs which subscribe for **Rocks and Minerals** also become affiliated members of the Rocks and Minerals Association and enjoy all the advantages which such an affiliation affords.

A number of clubs hold membership in the Association, participate in the annual outings, and co-operate in many ways in furthering the aims and ambitions of the Association.

Affiliation with the world's largest mineralogical society cannot fail to increase membership, enlarge circles of acquaintanceship, and stimulate a keener interest in mineralogy.

A list of affiliated clubs will be found among the back pages of the magazine.

ROCKS and MINERALS

PUBLISHED
MONTHLY



Edited and Published by
PETER ZODAC

April
1942

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ROCKS and MINERALS

PEEKSKILL, N. Y., U. S. A.

The Official Journal of the Rocks and Minerals Association

Chips From The Quarry

DEALERS—NOW IS YOUR OPPORTUNITY!

It is most encouraging to note from the many letters received how calmly the people of our great country are taking the war situation. No one is hysterical, in fact not even worried, but all are optimistic that we will win even though it may take a little time. Of course we will win—there is no question about it. Our resources are great, our courage and fighting ability are even greater, while our confidence was never surpassed.

Even though the war is on, collectors are just as energetic and enthusiastic over mineralogy as ever before. Nothing seems to dampen their spirit. Here is a sample of the letters we are receiving:

"Now that the tire situation is reaching an acute stage, it means that trips to localities will have to be sharply curtailed. However, this will not work too great a hardship as most of us can spend the time in going over our collections, rearranging the specimens on display, indexing them, or making other improvements. If we want to make any additions to our collections it will have to be done through dealers' catalogs. I am glad that I am a subscriber to *Rocks and Minerals*—the advertisements in the magazine will now have a new and an important meaning to me."

For many years dealers have had an uphill struggle in trying to stay in business. Orders were small and not too plentiful. The formations of many new clubs did not help matters much as many of the members did no buying.

Dealers now have an opportunity to come into their own. Conditions for them were never better. Collectors must have new minerals and since visits to localities may soon become almost impossible, specimens will have to be obtained through dealers. In fact many dealers have already reported large increases in



sale and they are even preparing to issue new and larger price lists and catalogs. Therefore all mineral dealers should look forward with confidence and hope as business is bound to boom for them!

Peter Zodac

Rocks and Minerals Free Samples Fund

Founded to cover cost of free copies of the magazine to be distributed during the New Jersey Mineral Show to be held later in the year

Contributions Received From

Rocks and Minerals	\$10
John Albanese, Newark, N. J.	\$10
Miss Violet Miller, Brooklyn, N. Y. ..	\$2
Total	\$22

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THE SCHORTMANN EXHIBITION SALE

December 11-13, 1941

The great Schortmann Exhibition Sale of December, 1941, is a thing of the past but it will long be remembered with many pleasant memories as one of the finest activities of its kind ever staged in the East. The exhibit was held in a large and spacious room on the 2nd floor of Hotel Shelton, Lexington Ave. and 49th St., New York City, and lasted for three days—Thursday, Friday, and Saturday, December 11th, 12th, and 13th, from 9:00 a.m. to 9:00 p.m. each day.

This great feature is an annual event that was first started by Arthur Montgomery, of New York City, some years ago. In 1940 the Schortmann Brothers (Alvin and Ray Schortmann), of Easthampton, Mass., took it over and they have and will continue to follow the same policy and plan as that adopted by Mr. Montgomery—featuring the finest specimens, fully labelled, attractively displayed, priced reasonably, and the exhibit opened to the public without any admission charge and no one urged to buy. Another feature which the Schortmanns are following (as adopted by Mr. Montgomery) is to display specimens from some new finds or recent acquisitions. In this exhibit the Schortmanns placed on sale for the first time the famous Tiffany Collection which they purchased from Tiffany & Co. of New York City (one of the world's greatest jewelers).

It is not necessary, therefore, to point out that the exhibit draws collectors from near and far—it is the greatest mineralogical event in the East and is looked forward to with a great deal of interest

and anticipation by all classes of collectors.

As is usual in such cases, the first morning saw the room jammed with collectors, all highly enthusiastic and delighted with the specimens on display. We arrived about 9:30 a.m. and just as we tried to enter the room, Mr. and Mrs. James C. Moore, of Bridgeport, Conn., spotted us and without giving us an opportunity to take off our coat, they "dragged" us to a table on which were displayed the finest agates we ever saw in our life. Large and beautiful were the agates with many intriguing patterns and designs—all from Brazil and all different (they were from the Tiffany Collection)—and practically every one of the dozen or so, or at least it seemed so to us, carried the James C. Moore label. Some of the specimen were transparent and these Mr. Moore would hold in the light for our inspection. They were truly remarkable! No wonder he was anxious for us to see his new acquisitions! Mrs. Moore was just as excited over the agates as was Mr. Moore. While we stood gazing wide-eyed at the agates and tried to carry on a conversation with Mrs. Moore at the same time, Mr. Moore made desperate efforts to tell us something about an old mine in North Carolina that had been reopened not so long ago and which they had recently visited. He knew we did not get the gist of what he was trying to tell us and so a few weeks later sent us a letter in reference to it, suggesting that we try to get an article on the mine (worked for magnesium and

nickel) for *Rocks and Minerals*.

For the first two or three hours we could make very little progress in our efforts to examine the minerals on display due to the large number of collectors (both men and women) who blocked all tables. This did not worry us any as we spent the time in greeting collectors, many of whom were not only members of the Rocks and Minerals Association, but good friends of ours. The first person we looked for was Jack Boyle, of the Children's Museum, Brooklyn, N. Y. He was there—he had to go! A mineral show in the East without Jack Boyle in attendance could not be a success. He is as much of an attraction as is the show and his knowledge of minerals and their localities is astonishing. To thoroughly enjoy a mineral show have Jack Boyle guide you around. He will point out features about minerals or relate anecdotes about their localities as to amaze one—he is truly a walking mineralogical encyclopedia! You will hear more about him before we are through.

Another collector we looked for was O. Ivan Lee, of Jersey City, N. J. He was present. Mr. Lee has the distinction of being the first to register at more exhibits than any other collector in the East; once he was 2nd but that was some years ago. This year while he was busily registering, Harold C. Buckelew, of South Orange, N. J., "sneaked" past him and thus achieved the honor of being the first in the room. Shall we consider this a draw, a photo finish, or does Mr. Lee still retain an undisputed "first" at the exhibit!

Mr. and Mrs. Oscar W. Bodelsen, of Mt. Kisco, N. Y., arrived early and picked out a number of choice specimens. Among other things they told us of some very unpleasant incidents they had witnessed that very morning which befell a young man who had boarded the train with them. The young man was being mistaken everywhere for a Jap. First the ticket agent refused to sell him a ticket until the young man, who said he was a native of Ceylon (the large island off the southeastern coast of India), could produce a paper verifying he was not a Jap.

Once on the train the passengers refused to sit near him, much to the young man's embarrassment. Then to make the matters worse, the conductor wanted to put him off the train. The war, therefore, works hardships on everyone.

Finally we got an opportunity to examine the minerals on display. We found that there were 1108 of them arranged on tables set against the four walls of the room. The specimens were numbered consecutively, beginning with 1. Each specimen was displayed in its individual tray (with a few exceptions) accompanied by a label bearing its name, locality, and price. If a collector desired to purchase a specimen, he wrote his name on a small tag bearing two words—"Sold to"—(these tags were well distributed around the room in small packs on all tables) and then inserted it in the tray containing the specimen wanted provided that specimen had not been taken by another collector. After he had made his choice of the specimens wanted and jotting down their names, numbers, and prices on an order blank (also present), he approached one of the Schortmanns, presented his order and paid the amount of his purchases. The specimens, however, were not given him then, they must be left on display until the show is over after which they are carefully packed and mailed him.

A new feature adopted by the Schortmanns this year was the wording on the back of each mineral label which read:

From Our EXHIBITION and SALE

Hotel Shelton, New York City
December 11, 12, 13, 1941

Aside from the minerals, a large number of books on mineralogy, Estwing hammers, *American Mineralogist* and *Rocks and Minerals Magazines* were displayed—in addition, *Rocks and Minerals* circulars were also conveniently on hand.

During a lull near the close of the first day, about eight collectors got together to swap yarns and experiences. One of the Schortmanns related that about 10 years ago, when they wanted to visit some Canadian mineral localities, they wrote to Jack Boyle for directions

and advice, hoping to get a few pointers from him. Jack replied with a 10-page letter of instructions which were so concise and complete that they ever warned them that on a certain dump to watch out for tin cans as in them would be hornets' nests. And sure enough, on visiting the locality they found them.

But enough for preliminaries. Let us devote our attention to the minerals on display. These will be described alphabetically and in many instances we will give the names of their purchasers, trying not to overlap the purchases and recording but one specimen for each collector. Among the many minerals on display were:

Adamite: An interesting specimen of tiny reddish-brown crystals on rock hailed from Cap Garonne, France.

Aegirite: Loose, dark green (almost black) lustrous crystals from Narsarsuk, Greenland.

Albite: A beautiful white crystallized albite (pericline) from Salzburg, Austria, seemed to radiate hope that its nazi-ridden land would one day be a free nation again.

Allemontite: This interesting arsenical antimony was represented by a 2 x 2 inch mass from Příbram, Bohemia. A good looking collector from Brookl'n, N. Y., has it now.

Analcite: A large white crystal of this popular zeolite from the noted Fassathal, Tyrol, Austria, locality, was one of the first minerals tagged.

Anglesite: Dr. Frank A. Lewis, of Brooklyn, N. Y., arrived at bit late but soon discovered a very choice anglesite of a quality he had long desired to obtain and immediately tacked his name under it. The locality was Monti Poni, Sardinia.

Another choice crystallized specimen of this lead sulphate was from the Bage Mine, Cromford, Derbyshire, England, and it, too, was tagged but by another collector.

Ankerite: Only one specimen of this interesting carbonate on display but it was beautifully crystallized, of a whitish color, and associated with small rock crystals and pyrite crystals. Its locality was Saint Pierre de Mesage, Isere, France.

Antimony: Not every collection can boast of this native element so that the collector who tagged the massive, tin-white specimen on display now has something to crow about. The locality is Kern County, Calif.

Apatite: This calcium phosphate is always popular and its uses are as varied as its color. One use is for fertilizer; another is for gems. A number of interesting apatites on display attracted considerable interest. One was a loose purple crystal from Mt. Apatite, Auburn, Maine; another was a flattened colorless crystal which contained so many greenish epidote inclusions as to look green—it was from Knappenwand, Tyrol, Austria; still another consisted of grayish-green crystals in rock from Ehrenfriedersdorf, Saxony, Germany; while the most interesting of all, perhaps, was a cut gem of greenish color from Durango, Mexico.

Apophyllite: Some very fine apophyllites, all crystallized, were on display and they were all taken by collectors. One nice white one was from the Sampson Mine, Andreasberg, Harz, Germany; another, of a pale green color was from the Bhore Ghaut Incline, Poonah Bombay Railway, India. The most interesting of all was a nice white one from the abandoned magnetite mine at French Creek, Penn., which a collector from Peekskill, N. Y., grabbed following a brief lecture on the mineral by Jack Boyle. "The apophyllites from French Creek," said Jack, "fluoresce on the c faces (pearly faces) and the mineral from this locality is the only one known to show this." He was right; the c faces fluoresce green under the Argon bulb.

Aragonite: We noted two good specimens. A loose, pale yellow twin crystal from Horsenz, near Bilin, Bohemia, was tagged by Joseph W. Grant, of Mendham, N. J. The other, associated with sulphur (both crystallized), was from Girgenti, Sicily.

Arsenic: A popular native element is arsenic and a 2 x 3 inch mass from Schneeberg, Saxony, Germany, was noted tagged by a New Jersey collector.

Aurichalcite: Bisbee, Ariz., is noted for many beautiful minerals of which

bluish-green crystallized aurichalcite is one. A large number of these specimens were on display and most if not all were tagged. G. Strassburger, of Butler, N. J., and Mrs. Frank Williams, of Winsted, Conn., were two names we noted on the tags.

Autunite: This mineral owes its popularity to its beautiful greenish fluorescence under all types of ultra violet lamps. The most noted locality in America for autunite is the Ruggles Mine, of Grafton Center, N. H., where it occurs as greenish incrustations on feldspar and quartz.

Axinite: Joseph Kantor, of Brooklyn, N. Y., added a nice axinite crystal group from Luning, Nev., to his collection. Another collector tagged a nice loose crystal from Skopi, Dissentis, Switzerland.

Azurite: No exhibit could be a success without showing some azurites from the world famous copper mines of Bisbee, Ariz. No collection could be worth while without an azurite from this locality thought Neil Winttingham, of Glen Ridge, N. J., and so he inserted his name under a nice specimen.

Barite: Mrs. M. A. Newell, of Colebrook, Conn., visited the exhibit every day (she was most enthusiastic over the display) and selected among other fine specimens, a choice crystallized barite from Frizington, Cumberland, England. Another collector secured a very good crystallized barite from Freiberg, Saxony, Germany.

Bassetite: A fine specimen of this rare hydrous phosphate of uranium and calcium as tabular yellow crystals on rock, from Wheal Basset, Illogan, Cornwall, England, carried the name of Walter P. Sachs, of Caldwell, N. J. Mr. Sachs has one of the most complete collections in the country—all specimens of good quality and all of the same size, 2 x 3 inches.

Benitoite: Bluish crystals on white natrolite from San Benito County, Calif., is one of the many minerals that has made California famous.

Beryl: There were many fine beryls on display of all colors and varieties. A most interesting group of emerald crystals from Bahia, Brazil, carried the name of O. W. Bodelsen, of Mt. Kisco, N. Y.

Fine loose emerald crystals from Bogota, Colombia, and emerald crystals in matrix from Crab Tree Mt., Mitchell County, N. C., were also on display.

Aquamarine crystals, loose and gemmy, from Klein Spitzkopje, Southwest Africa, and a 3 inch crystal from Sahaniivotry, Madagascar, attracted considerable interest.

A golden beryl crystal from the Slocum Quarry near East Hampton, Conn., created lots of attention due to the fact that a number of collectors present had visited the locality but never found anything as good as that on display.

Mrs. M. E. Taylor, of Attleboro, Mass., added to her collection a very fine large morganite crystal in matrix from San Diego County, Calif.

A large number of cut gems among which were many beryls, was a feature of special interest to many collectors. Among the beryls were emeralds from Colombia—J. McCormack, of New York City, could not resist tagging one. A. Hoffman, of New York City, tagged a very beautiful morganite from Tsilaissina, Madagascar. Another collector selected an aquamarine from Ankazobe, Madagascar.

Bismuthinite: S. Kallich, of Brooklyn, N. Y., tagged a fine specimen of this interesting bismuth sulphide from Goldfield, Nev.

Bournonite: Some collector added a good specimen to his collection when he added his name under a bournonite (small black crystals in drusy quartz) from the Herodsfoot Mine, Lanreath, Cornwall, England.

Calamine: Three specimens, all crystallized, a yellowish from Joplin, Mo.; colorless from Santa Eulalia, Chih., Mexico; and a white from the Ojuela Mine, Mapimi, Mexico, were very good representatives of this interesting zinc silicate.

Calcite: Many fine crystallized calcites were on display. Among the localities noted were Bisbee, Ariz.; Joplin, Mo.; Cumberland and Westmoreland, England.

A very fine thin section of a greenish stalactite from the Copper Queen Mine, Bisbee, Ariz., was selected by Mrs. Mar-

garet Mack of New York City. This was one of the transparencies of which a number were on display.

Caledonite: Bluish-green crystals on rock from the Mammoth Mine, Tiger, Arizona, and from Inyo County, Calif.

Calomel: From the mercury fields of Terlingua, Texas, we spotted this specimen.

Cassiterite: Due to the current interest in tin, cassiterite, its chief ore, naturally attracted much interest and discussion. Loose crystals from La Villeder, Morbihan, France and Schlackenwald, Bohemia (latter tagged by John C. Keenan, of Riverdale, New York City) were carefully examined by many collectors.

Celestite: A choice loose crystal from Bristol, England, intrigued John P. Gill, of the Bronx, New York City, and it is now resting in his collection.

Cerargyrite: A nice 2 x 2 inch specimen of this silver chloride (horn silver) from Grant County, N. Mex., was another of the western minerals to create discussion among eastern collectors.

Cerussite: A number of very fine crystallized specimens of this lead carbonate were on display. Mrs. Grace Dearborn, the popular Secretary of the Boston Mineral Club, (who was on her way home to Cambridge, Mass., from a Mexican trip) selected a number of specimens of which one was a choice cerussite from the Mammoth Mine, Tiger, Ariz. Some one selected a good specimen from the Hecla Mine, Burke, Idaho. Irving Horowitz, of Brooklyn, N. Y., added another off-locality to his collection with the acquisition of a cerussite from Nerchinsk, Siberia. A specimen of nice platy crystals from the Stevenson-Bennett Mine, Organ Mts., New Mex., fell into the possession of another collector.

Chabazite: Another interesting zeolite is chabazite and a number of good crystallized specimens were present. A red specimen from Wasson's Bluff, N. S., Canada, carried the name of A. B. Crunden, Montclair, N. J. Another red specimen was from Striegau, Silesia, Germany. Other specimens included a pale yellow variety from Gosochener Alp, Switzerland.

Chalcocite: A number of crystallized specimens of this copper sulphide from the old abandoned copper mine near Bristol, Conn., went like hot cakes. C. M. Thomas, of Wallingford, Conn., obtained one. We know of a good-looking druggist from Westchester County, N. Y., who also got a nice one.

Another interesting specimen, also crystallized, claimed its locality as West Wheal Basset, Illogan, Cornwall, England.

Chalcopyrite: This is one of the most common of minerals but good crystallized specimens are not always easy to get. The exhibit contained many very good specimens from a number of localities. There were specimens consisting of crystals on dolomite from the zinc mines of Joplin, Mo.; and crystals with rock crystals from the old abandoned lead-zinc mine of Ellenville, N. Y. Chalcopyrite, crystallized, from the East Pool Mine, Illogan, Cornwall, England. Small spheonoids on fluorite from Carn Brea Mine, Illogan, Cornwall, England. Still another consisted of chalcopyrite crystals on gray crystallized dolomite from the Wanlockhead Mine, Dumfriesshire, Scotland—this was tagged by a collector from Mt. Kisco, N. Y.

Chalcosiderite: A number of specimens of this green copper phosphate helped to swell the many copper minerals present. They came from Wheal Phoenix, Cornwall, England.

Childrenite: This interesting aluminum phosphate, which may easily be mistaken for siderite, was first found in cutting a canal near Tavistock, Devonshire, England. Large and brilliant crystals varying from yellowish-white to brown have been found in the George and Charlotte Mine, between Callington and Tavistock, Devonshire, England, from which mine a fine specimen was on display at the exhibit.

Chiolite: This is a fluoride of sodium and aluminum which comes from the one and only cryolite mine of the world at Ivigtut, Greenland. When white and massive it is difficult to distinguish chiolite from cryolite.

Chrysoberyl: We are all familiar with this green beryllium aluminate from Maine (a nice crystal in gray microcline from Greenwood, Oxford Co., Me., was on display) but there may be some who do not know that recently some marvelous crystals have been found in Minas Geraes, the great gem state of Brazil. Quite a number of these crystals, all loose, were on display.

Cinnabar: This is the chief ore of mercury and when in pure red masses resembles a piece of red brick. Cinnabar is one of the strategic minerals. Robert Aborn, of Short Hills, N. J., found one of the specimens to his liking and so tagged a rich cinnabar from San Diego County, Calif.

Cobaltite: Sulpharsenide of cobalt is this silvery-white mineral and the collector who tagged a $\frac{1}{2}$ inch loose crystal from Tanaberg, Sweden, was Dr. B. Schwartz, of the Bronx, New York City.

Copper: This beyond doubt is the most popular of the native metals and some of the finest specimens known come from the great copper mines of Lake Superior. There were a number of fine specimens on display, one of which appealed to Charles Velte, of Brooklyn, N. Y.

The copper mines of Bisbee, Ariz., also produces fine specimens (a dentist from the Bronx tagged one).

The Santa Rita Pit, Grant Co., New Mex., not only furnishes good specimens of native copper but some of the copper is pseudomorph after azurite and both types were on display.

Cordierite: This mineral is more commonly known as iolite. A beautiful faceted gem, of a bluish color, from Tsihombe, Madagascar, has enriched some collector's gem collection.

Corundum: Six nice bluish crystals (sapphires), in a glass-topped box, came from the famous sapphire diggings of Yogo Gulch, Fergus Co., Mont.

Covellite: A very fine crystallized, indigo-blue copper sulphide, (covellite), from the great copper mines of Butte, Mont., was tagged early on the first morning.

Cristobalite: White spherical aggregates in black obsidian from Inyo Co.,

Calif.

Crocidolite: This is one of the asbestos minerals and because of its blue color is sometimes called blue asbestos. It is mined in the Asbestos Mts. of Griqualand West, north of the Orange River, in South Africa. A fine fibrous mass from the locality took the eye of J. N. Trainer of New York City so that it passed into his possession.

Cryolite: This is the chief mineral mined at Ivigtut, Greenland. A fine specimen of cryolite, which sometimes is called icestone, was acquired by Joseph Davidoff, of Morristown, N. J.

Cuprite: A fine loose red crystal of this copper oxide from Bisbee, Ariz., was noted but it was Jack Boyle who called our attention to its transparency when he held it in the light for our inspection. We never before saw such a gemmy cuprite! But we did notice that it was taken—a tag bore the name of J. G. Baragwanth, of New York City.

Curtisite: Although only a hydrocarbon, yellow to pistachio green in color, it is of interest due to its fluorescence. It occurs at Skaggs Springs, Sonoma Co., Calif., where it is commonly associated with realgar, metacinnabar, and opal.

Danburite: The New York danburite, at least those specimens now obtainable at the locality, are not noted for their beauty, as they resemble a very poor grade of crystallized quartz of a dirty yellowish-white color. There was on display, however, a fairly nice specimen from the one and only New York locality—Russell, St. Lawrence Co.

Descloizite: We noted only one locality for this interesting vanadate—the noted Mammoth Mine, of Tiger, Pinal Co., Ariz.

Diaboleite: This is a rare mineral which is known from only one locality in the western hemisphere—Mammoth Mine, Tiger, Pinal Co., Ariz. It is a secondary mineral and occurs as bluish masses and crystals commonly associated with boleite, cerussite, and wulfenite. Quite a number of these interesting specimens were tagged; Master John P. Snyder, of Floral Park, N. Y., added a fine one to his growing collection.

Diamond: Most collectors are familiar with diamonds from the famous mines of Kimberly, South Africa, consequently the two nice crystals on display (a cube and an octahedron) from the Belgian Congo, Africa, created considerable attention.

Diopase: At least 20 specimens of this gorgeous green copper silicate (nicely crystallized) were on display and all were taken. The locality was the famous Mammoth Mine, of Tiger, Ariz.

Dufrenite: This iron phosphate has a greenish color but on exposure to air alters to yellow or brown. A very nice specimen from the Wheal Phoenix copper mine, Linkinhorne, Cornwall, England, was on display.

Embolite: This silver chloro-bromide is one of the ores of the great silver-lead mine at Broken Hill, N. S. W., Australia. A fine crystallized specimen was on display.

Enargite: Another copper mineral from the copper mines of Butte, Mont.—black and crystallized. Small black crystals, on crystallized milky quartz was a fine representative of the mines of Cananea, Mexico.

Epidote: The fine dark green, crystals and crystallized specimens from the Prince of Wales Island, Alaska, were much in evidence (Herbert Gray of Forest Hills, N. Y., tagged a nice crystal). There were also slender, dark green crystals from Knappenwand, Untersulzbachthal, Tyrol, Austria; and black crystals from Traversella, Piedmont, Italy.

Erinite: Another copper mineral is emerald-green erinite (copper phosphate). The specimen on display came from Trail Creek, Colo.

Erythrite: Peach-red incrustations of this hydrous cobalt arsenate (also known as cobalt bloom) on massive tin-white smaltite (cobalt sulphide) furnishes an attractive specimen for the cabinet. The locality for the one on display is the Pedandrea Mine, Cornwall, England.

Euchroite: Still another interesting copper mineral is the green copper arsenate, euchroite, whose crystals sometimes resemble diopase. It occurs on slate at Libethen, Hungary.

Euclase: R. V. Gaines, of New York City, selected a fine euclase gem crystal (gray-blue color) from Ouro Preto, Minas Geraes, Brazil. Top Sergeant Gaines, of the U. S. Army, left for Africa the very day the exhibit closed.

Eulytite: Bismuth silicate. Found as small crystals varying in color from brown, gray, yellowish to colorless. Occurs with native bismuth near Schneeberg, Saxony, Germany.

Ferberite: Iron tungstate occurring commonly as sharp black crystals on rock near Nederland, Boulder Co., Colo.

Fluorite: There were fluorites galore at the exhibit and of all colors, types, and localities. Among them were: well formed octahedrons from Mt. Antero, Colo. (Mr. and Mrs. George Switzer, of New Haven, Conn., who were early comers on the first morning, picked out the best specimen for the collection at Yale University where Mr. Switzer is an instructor in mineralogy); Reddish-purple, crystallized specimens from the fluorite mines of Cave-in-Rock, Hardin Co., Ill., Bluish, crystallized, from Socorro County, New Mex.

Golden cubes of fluorite from the Scordale Mine, Hilton, Appleby, Westmoreland, England; grayish-green, crystallized, from Bolts Burn Mine, Weardale, Durham, England (W. Farndon, of Douglaston, N. Y., tagged a fine group from Weardale which fluoresced beautifully); purplish, crystallized, from Rodderup Fell Mine, Alston, Cumberland, England; grayish-blue, crystallized, from Wheal Gorland, Gwennap, Cornwall, England; and a pale yellowish crystal with chalcopyrite inclusions from the Gill Head Mine, Appletreewick, Yorkshire, England.

Freibergite: This is a silver-bearing tetrahedrite (copper antimony sulphide) whose color is usually steel-gray. A nice specimen from the Pulacayo Mine, Huanchaca, Potosi, Bolivia, was on display.

Galena: Some beautifully crystallized specimens of this lead sulphide were present. We noticed them from Joplin, Mo.; Picher, Okla.; and sharp crystals on drusy quartz from the Rodderup Fell Mine, Alston, Cumberland, England (a

collector from Millington, N. J., tagged this one).

Garnet: Quite a number of interesting garnets were on display. There were loose dark red almandite crystals from Fort Wrangell, Alaska; red crystals of essonite in rock from Ramona, Calif.; black crystals of melanite in rock from San Benito, Calif.; and large rough dark brownish crystals of spessartite from the famous topaz locality on Thomas Mt., Utah.

Goethite: Thick botryoidal brownish mass, from Bisbee, Ariz.

Gold: Small flattened nuggets in vial from Eagle River, Baker Co., Oregon. Two fine specimens consisting of small flakes and plates in massive smoky quartz, both polished, were from Granite Co., Colo., and from Sonora, Mexico.

Graftonite: This interesting phosphate of iron, manganese, and calcium, whose color is salmon-pink but becomes dark from alteration, is interlaminated with triphylite. Specimens were from the Rice Quarry, North Groton, N. H.

Gummite: An alteration product of uraninite, commonly in rounded or flattened pieces, looking much like gum. Its color is reddish yellow or reddish orange. The specimens displayed were from the noted Ruggles Mine, Grafton Center, N. H., and were polished. A radiogram picture accompanied each mineral. These minerals are radio active and can photograph themselves.

Gypsum: A small group of crystallized specimens (selenite) from St. Ingeoes, Maryland, created considerable speculation over their ability to phosphoresce. A loose 3" crystal of selenite contained so many inclusions (possibly clay) as to appear brown. Selenite is commonly colorless.

Harmotome: Colorless, crystallized, from Bellsgrove Mine, Strontian, Argyleshire, Scotland, where it is commonly associated with calcite and barite.

Heulandite: Another popular zeolite. There were white, also flesh-colored crystallized specimens from the world's greatest locality for the mineral—Berufjord, Iceland.

A fine specimen from Poonah, India,

must have caught the eye of H. J. Swann, of Brooklyn, N. Y., for his tag was seen in its tray.

Howlite: A fine white specimen of this calcium borate from Lang, Calif.—it had one face polished.

Hydrozincite: A compact white zinc carbonate from Goodsprings, Nev. Some of these specimens fluoresce blue.

Jade: W. Barrow, of Great Neck, N. Y., not only found a nice polished jade from the Onot River, Siberia, much to his liking but he also found *Rocks and Minerals* to be the ideal mineral magazine he had been looking for and immediately subscribed.

Jarosite: A brown mass of this iron sulphate whose locality was Cata Blanca, Spain.

Labradorite: A polished slab showing a beautiful play of colors from St. Paul Island, Labrador.

Lapis Lazuli: E. F. Judd, of Upper Montclair, N. J., added a specimen of lapis lazuli to his work bench for cutting purpose during leisure moments. It was from Badakshan, Afghanistan. A polished slab of this beautiful blue mineral came from the neighboring country, Persia (or Iran, as she is now called).

Leadhillite: A sulphato-carbonate of lead associated with cerussite and lanarkite from the Susanna Mine, Leadhills, Lanarkshire, Scotland.

Libethinite: Another copper phosphate. It is green, crystallized, and is from South Wheal Francis, Illogan, Cornwall, England.

Linarite: Deep, azure-blue copper-lead sulphate, crystallized, from the Mammoth Mine, Tiger, Ariz.

Lollingite: A 3 x 3 inch mass of silvery-white iron arsenide from the Palermo Mine, N. Groton, N. H.

Magnetite: An interesting specimen consisted of crystallized magnetite associated with pale smoky quartz crystals from Morawicza, Banat, Rumania. The locality was formerly in Hungary but after the first World War the area was ceded to Rumania.

Malachite: This beautiful green copper carbonate is always popular with collectors and many fine specimens from Bis-

bee, Ariz., were on display. Another locality represented was Tsumeb, S. W. Africa, from which a fine little malachite pseudomorph after an azurite crystal was tagged by A. G. Bernholdt, of Jamaica, N. Y.

Marcasite: Crystallized, from Joplin, Mo.

Microcline: Green minerals were very common at the exhibit. Among them were amazonstones (nice crystals from Crystal Peak, Colo., and S. W. Africa) and polished masses from Amelia Court House, Va.

Monazite: Loose brownish crystals of monazite (phosphate of the cerium metals) from the Ramsey Mine, near Toledo, Yancey Co., N. C.

Natrolite: A very fine, white, crystallized specimen from Aussig, Bohemia, was picked up by Thomas N. Walthier, of Elmhurst, N. Y.

Nicolite: Pale copper-red nickel arsenide associated with native silver (both massive) from the world famous silver-cobalt-nickel mines of Cobalt, Ont., Canada.

Octahedrite: Also known as anatase, is titanium oxide. Brown crystals in chlorite from the Virtuous Lady Mine, near Tavistock, Devonshire, England.

Oligoclase: A pretty specimen of this feldspar spangled with golden scales, giving fire-like reflections when turned in the light, is called aventurine feldspar or sunstone. A number of polished specimens from Tvedestrand, Norway, were on display.

Olivenite: Still another green copper mineral is olivenite and this one Dr. Julius Weber, of Brooklyn, N. Y., could not pass up. It was nicely crystallized and its locality was Wheal Unity, Gwennap, Cornwall, England.

Opal: For those who love opals there was a large assortment of very beautiful material. Among them were precious opal in lava from Red Rock Canyon, Calif.; precious opal (limb sections) from Virgin Valley, Nevada; precious opal from Barcoo River, Queens., Australia (Dr. A. H. Reynolds, of New York City, followed his weakness to the opal section of the exhibit and added to his collection a

choice specimen of fire opal from Lightning Ridge, N. S. W., Australia; (this was thought to be a replacement after wavelite).

Hyalite, both white and blue varieties, from Spruce Pine, N. C., were also present. The former fluoresces green under ultra violet lamps; the blue is inert.

Orpiment: Beautiful golden yellow platy masses on white calcite from Mercur, Utah.

Orthoclase: Collectors are familiar with this feldspar chiefly when in crystal form and many good sharp crystals were on display. There were flesh-colored crystals from Goodsprings, Nev.; flesh-colored crystals (Baveno twins) from Baveno, Italy; gem quality pale yellow crystal masses from Itrongahy, Madagascar; white crystals (adularia) from Salzburg, Austria, and St. Gothard, Switzerland.

Phenacite: Six nice loose colorless crystals of this beryllium silicate from San Miguel di Piracicaba, Minas Geraes, Brazil.

Plagionite: Dark lead-gray lead-antimony sulphide. A. R. Green, of Brooklyn, N. Y., chose a nice specimen of this uncommon mineral which comes from Westphalia, Germany.

Platinum: Grains in vials from the Esterley Mine, O'Brien, Ore.

Pollucite: A rare colorless caesium silicate from Newry, Me., which sometimes occurs in gem quality.

Polybasite: Silver-antimony sulphide of an iron-black color. Three fine crystallized specimens on display. One was from the Yankee Boy Mine, Ouray, Colo.; the second from Las Chispas Mine, Arizpe, Mexico; and the third from Felsobanya, Hungary.

Prehnite: Although one of the most common minerals in the trap rock quarries around Paterson, N. J., it is almost always found in good quality, green in color, and encrusting cavities of the rock (basalt). Pale green crystallized masses from St. Christophe, Dauphiny, France, also seen.

Prosopite: Calcium-aluminum fluorite. Small whitish crystals on rock from Mt. Rose, El Paso Co., Colo.

Proustite: Harry Drake, of East Orange, N. J., tagged a fine bright red proustite (silver-arsenic sulphide) from Chanarcillo, Chile, without even reading its label.

Pseudobrookite: Harry C. Grahrl, of New York City, who spent some time in examining the minerals on the opening morning, could not make up his mind about what he wanted. He had to get help. He returned later in the day with his brother and one of the specimens tagged was a very nice grayish black pseudobrookite crystal (in rhyolite) from Thomas Range, Utah.

Purpurite: This showy purple phosphate is always popular with collectors. Nice specimens on display from N. Groton, N. H.

Pyargyrite: Two fine crystallized specimens of this black silver-antimony (sometimes known as dark ruby silver because by transmitted light it has a deep red color). One was from Andreasberg, Harz, Germany; the other, associated with quartz crystals, was from the Las Chispas Mine, Arizpe, Mexico.

Pyrite: Another popular mineral with collectors is pyrite and a large assortment was on display. There were loose, lustrous cubes from Leadville, Colo.; loose crystals and crystallized specimens from Bingham, Utah; small cubes in green prochlorite from a talc mine near Chester, Vt. (Charles Pasework, of New York City could not bear to see all of them taken so he tagged one, too); loose crystals from the island of Elba, Italy; and loose crystals from Akatani, Province Echigo, Japan.

Pyrolusite: Black manganese oxide, one of the important ores of manganese. A very fine crystallized specimen from Holleter Zug, Siegen, Westphalia, Germany, was observed to carry the tag of Walter Helbig, Queen's Village, N. Y.

Pyromorphite: Lead phosphate. The Mammoth Mine of Mace, Utah, furnished green specimens; Wheal Alfred mine, Cornwall, England, sent brownish specimens; while Ems, Nassau, Germany, supplied dark brown specimens.

Pyroxene: This rock forming mineral was represented by loose dark green cry-

stals from Boreoslav, Bohemia, and dark green crystallized specimens from Otter Lake, Ont., Canada. In both cases the specimens were augite.

Pyrrhotite: Platy masses of this magnetic pyrite from both the Potosi Mine, Santa Eulalia, Chih., Mexico and from Kisbanya, Rumania.

Quartz: This mineral was represented by more specimens than perhaps any other ten put together. There were many varieties of form and color. Among the ones we noticed were: *Agates:* We have already mentioned the large array of agates from Brazil. There were other specimens—thin polished slabs that were mounted on two presswood boards with lights behind them. These lights, shining through the slabs of a number of other minerals besides agates, brought out the beautiful color and designs of each. It is needless to say that these transparent minerals, termed transparencies, created considerable interest and discussion. The agates so mounted were from Brazil, Uruguay and South Africa. A colorful moss agate (polished) from Hartsville, Platte Co., Wyo., was added to the fast growing collection of Merton McKown, of S. Ozone Park, N. Y. *Amethyst:* Well represented and very beautiful crystallized. There were some fine specimens from Jefferson Co., Mont.; gem crystals from Alexander Co., N. C.; gem crystals (also cut gems) from Rice, Va.; crystallized (pale color) from Nova Scotia, Canada; nice crystals from Pretoria, S. Africa; deep color and crystallized from Uruguay. A very fine amethyst geode from Uruguay was tagged by Harold C. Buckelew, of S. Orange, N. J. *Chalcedony:* Brownish masses from Central Point, Jackson Co., Ore. Beautiful specimens of chalcedony pseudomorph after coral from Ballast Point, Fla.; and blue specimens pseudomorph after fluorite from Tresztan, Transylvania, Hungary. *Citrine:* Small loose crystal with phantom from Minas Geraes, Brazil. *Geode:* There were some huge amethyst geodes from Uruguay on separate stands but the thin walled chalcedony specimens filled with water (called enhydros) intrigued everyone. These geodes were picked up and shaken by so

many collectors that it is a wonder some of them did not break. Frank Hess, of Springfield, Mass., who is President of the Connecticut Valley Mineral Club, tagged one $\frac{3}{4}$ full of water which could be heard splashing inside of it even when one was some distance away. Geodes from the famous American locality, Keokuk, Iowa, were also well represented.

Milky Quartz: Flattened 4" crystals from Rabun Co., Ga. *Petrified Wood*: From Eden Valley, Wyo. *Rattle Boxes*: There were a number of dried up water geodes from Uruguay which contained small loose grains of some kind. These geodes when shaken would rattle and they likewise created lots of attention. *Rock Crystals*: There were so many rock crystals present, loose and crystallized, that we did not get even half of their localities.

Herkimer County "diamonds" from Little Falls, Herkimer Co., N. Y., were all tagged early in the morning. Some were absolutely flawless, others had inclusions of black "carbon" or containing water bubbles—one had an inclusion floating in the liquid that was the envy of many. We believe that the very first collector to see it (J. W. Grant) put his tag under it. There were also a number of crystallized specimens, some associated with chalcopryite crystals, from Ellenville, N. Y. A 2" loose crystal was from Blue Mt., Ark. Mrs. A. S. Goodwin, of New York City, tagged an unusual quartz crystal group from Lincoln Co., N. C., containing inclusions of clay. A 5" loose crystal of optical quality, from Minas Geraes, Brazil, was also present; six or more very slender loose crystals from Minas Geraes, Brazil, were very unusual as they resembled lead pencils in shape.

Rutilated Quartz: Dr. Dwight W. Rife, of Santa Fe, N. Mex., obtained a large, perfect crystal filled with rutile needles (from Minas Geraes, Brazil). This specimen was tagged for him by a friend.

Smoky Quartz: These, too, were well represented, both crystals and crystallized. A 4" loose crystal was from Mt. Antero, Colo.: a group of crystals in parallel growth came from Auburn Me.; Beaver Co., Utah, furnished a 3 x 5" loose gemmy crystal; while St. Gothard and Gos-

chener Alps, Switzerland, were each represented by very fine gemmy crystals. *Tiger Eye*: A very fine polished slab of this brownish petrified asbestos from Griqualand West, S. Africa.

Realgar: This red mineral associated with golden yellow orpiment made a very handsome specimen. It was from Manhattan, Nev.

Rhodochrosite: Specimens of this rich pink manganese carbonate from an abandoned gold mine in Catamarca Province, Argentina, are known as "Inca roses." An unusually fine polished slab from the locality was tagged by Dr. A. T. Milhorat who could not resist its beautiful color. The Princeton University collection, at Princeton, N. J., was enriched by the addition of a fine large specimen of rhodochrosite crystals on quartz crystals from Cananea, Sonora, Mexico. The university was represented by Drs. H. H. Hess and H. L. James.

Rutile: Graves Mt. Ga., furnishes the finest rutiles in the world—black, lustrous crystals in cyanite. Some nice loose crystals from the locality were on display.

Sanidine: Many fine specimens, both rough and polished and also cut gems, of the variety known as moonstone, were available. They all came from Grant Co., New Mexico.

Scolecite: Another zeolite, in white, compact-fibrous masses from the noted locality of Berufjord, Iceland.

Scorodite: Hydrous ferric arsenate, greenish-blue, crystallized on rock from the celebrated gold mine at Morro Velho, Brazil, which only a few years ago was the deepest mine in the world.

Serpentine: The world's largest asbestos mine is at Thetford, Que., Canada, where the mineral is the silky fibrous chrysotile. A very fine specimen of this asbestos was on display.

Siderite: A fine specimen of this iron carbonate, crystallized with chalcopryite crystals, from the East Pool Mine, Illogan, Cornwall, England.

Silver: There were some very fine specimens of native silver on display such as one crystallized on pyrite and rock from the Goul & Curry Mine of the Comstock Lode, Nev.; small flattened masses

from Cobalt, Ont., Canada; but the most interesting of all was a crystallized specimen from Durango, Mexico,—a long, slender specimen that resembled a lizard in appearance. This very fine specimen was tagged by a collector from Millington, N. J.

Sodalite: The deep blue masses from Bancroft, Ont., Canada, which take such a nice polish will never lose their popularity with collectors.

Sphalerite: Zinc sulphide. A nice sphalerite associated with galena and both crystallized was from Joplin, Mo., while an equally nice crystallized sphalerite was from Schemnitz, Hungary.

Spinel: As long as mineral collecting will endure, nice crystals from Amity, Orange Co., N. Y., will always be available. There were also some very interesting specimens from Madagascar of which a loose crystal came from Ambatomainity, while some rose-colored cut gems were from Nosy-Mitsio (one of these latter was tagged by John A. Hardy, of New York City).

Spodumene: Large crystals of the pink mineral (kunzite) were available from Pala, Calif.

Staurolite: E. L. Sampter, of New York City, was delighted with a finely-shaped twin crystal from Fannin Co., Ga., and tagged it.

Stephanite: Silver-antimony sulphide of an iron-black color from Andreasberg, Harz, Germany. No sooner did J. Fred Poestkoke, of Brooklyn, N. Y., spot this specimen then his tag was seen being inserted under it.

Stibnite: A 3" lustrous crystal from the celebrated stibnite mines of Iyo, Japan.

Stolzite: Lead tungstate from the famous mines of Broken Hill, N. S. W., Australia.

Sulphur: A gorgeous yellow crystallized specimen from the world's most noted locality for sulphur—Girgenti, Sicily.

Tarbuttite: Colorless to pale yellow phosphate of zinc in rounded crystals, from the famous lead-zinc mines of Broken Hill, Northern Rhodesia, S. Africa.

Tellurium: A nice mass of native tel-

lurium from Grant Co., New Mex., was "grabbed" by our friend, Jack Boyle.

Tetrahedrite: A nice crystallized specimen of this gray copper ore was from the Herodsfoot Mine, Lanreath, Cornwall, England.

Titanite: Large brown crystals, loose, from near Eganville, Renfrew Co., Ont., Canada.

Topaz: Quite a number of loose crystals were present of this popular gem stone. Among them were bluish crystals from Ramona, San Diego Co., Calif.; brownish crystals from Devil's Head, Colo.; colorless crystals from Thomas Mt., Utah; wine colored crystals from Ouro Preto, Minas Geraes, Brazil; deep blue crystal from Tenagori, Japan (some of which were cut gems); and colorless cut gems from Scarano, Madagascar.

Torbernite: Hydrous phosphate of uranium and copper. Green, crystallized specimens from South Wheal Basset, Illogan, Cornwall, England.

Tourmaline: The display of tourmalines was large and most attractive. There were pink rubellite crystals in quartz from San Diego Co., Calif.; large black crystals from Ramona, Calif.; a fine tourmaline from Newry, Me., was tagged by L. E. Sproat, of E. Norwalk, Conn.; dark green crystallized specimens from Figueira, Minas Geraes, Brazil, and dark green slender crystals from Barra de Salinas, Minas Geraes, Brazil; a fine brown crystal (dravite) from Carniola, Jugoslavia, was tagged by the popular president of the New Jersey Mineralogical Society, Joseph D'Agostino, of Plainfield, N. J.

While we were examining some lustrous, black crystallized tourmalines from Pierrepont, St. Lawrence Co., N. Y., Jack Boyle sauntered up and joined us. Noting our interest in the specimens he very kindly gave us some information on their occurrence.

"These black crystals," he said, "are found in large quartz boulders in a very mucky field. We would roll the boulders on dry ground and then break them open with sledge hammers. The boulders also contained masses of brownish calcite. The finest and most lustrous tourmalines are embedded in this calcite; those tour-

malines which are embedded in quartz are etched and of poor quality. Therefore, when collecting in this area one should always look first for the calcite masses as in them would be found the finest crystals. Incidentally the muck field is a pasture on the slope of a hill."

(The Pierrepont tourmaline locality has been described in more detail by Leo Neal Yedlin. See "Some Notes on St. Lawrence Co., New York," *Rocks and Minerals*, June, 1940, p. 184).

There were also quite a number of lovely cut gems of tourmaline among which were green stones from Mesa Grande, San Diego Co., Calif.; blue stones from Hebron, Me., greenish blue from Newry, Me.; and deep blue from Mt. Mica, Me.; a large deep red stone from Minas Geraes, Brazil, intrigued Martin Ehrmann, the popular mineral dealer of New York City; and violet, also pale yellow, from Tsilaïsa, Madagascar.

Tungstenite: Dark lead-gray sulphide of tungsten, earthy or foliated; in minute scales from Salt Lake Co., Utah.

Turquoise: A very fine specimen of this lovely blue gemmy mineral from Gila Co., Ariz.

Vanadinite: Magnificent specimens of this lead chlorvanadate. Orange-red crystallized specimens from the old Yuma Mine, near Tucson, Ariz., from Hillsboro, Ariz., and from the Mammoth Mine, Tiger, Ariz. Also brownish crystallized specimen from Djebel, Mahseur, Morocco.

Variscite: There were quite a number of variscite specimens (from Fairfield, Utah), all beautifully polished, of green color, and with attractive designs. I. W. Humphrey, of Wilmington, Del., who braved a very rainy day to visit the exhibit, selected, among many specimens, a most colorful and highly polished variscite.

The most attractive and spectacular specimen on display was tagged by Dr. F. H. Pough, of the American Museum of Natural History in New York City. This consisted of a large variscite nodule that had been sliced into 9 sections, with all flat faces polished, and mounted on a

shelf (with a mirror for a background) to show the definite changes in the designs of the mineral from one end to the other. We will look forward with much interest toward seeing this unusual specimen on display at the museum.

Many of these variscite specimens contained englishite, gordonite, lewistonite, montgomeryite, overite, and wardite.

Wolframite: Tungstate of iron and manganese, black in color. From Ehrenfriedersdorf, Saxony, Germany.

Wulfenite: Magnificent specimens of this lead molybdate from Arizona were much in evidence. They were all beautifully crystallized. Among them were yellow specimens from Hilltop, and from the Mammoth Mine, Tiger, while red specimens came from the Red Cloud Mine of Yuma County. One of the very fine specimens from the Mammoth Mine was tagged by Dr. J. Gerald Gilchrest, of Nyack, N. Y. We believe Mrs. Gilchrest, who accompanied her husband, was instrumental in the picking of this particular specimen.

There were some nice brownish specimens, all crystallized, from the Ahumada Mine, Las Lamentos, Chih., Mexico, and from Meiss, Jugoslavia.

Zircon: Nice brown crystals in rock from St. Peter's Dome, Colo.

The Schortmann Exhibition Sale was a grand success. There were more specimens sold during the first day than during the entire exhibition of the previous season; the last two days were very stormy ones but the collectors kept coming in regardless of weather conditions.

We believe that the wives of the two popular dealers should be given some credit for the artistic arrangement of the many and varied displays. They are very charming young ladies, friendly, good-looking and know more about minerals than they would like you to believe.

Our congratulations are extended to the Schortmanns. We are all looking forward to their next exhibit.

FRANCONIA IRON MINE, LISBON, N. H.

By HAROLD J. VERROW, Gorham, N. H.

During the past several years, I made a number of collecting trips to the old abandoned Franconia iron mine. One of these trips was in the company of Dr. C. Frondel of Harvard University, Cambridge, Mass., Dr. E. L. Prien of Boston, Mass., and Mr. P. C. Leggett of Gorham N. H. Another trip was in the company of Dr. H. M. Bannerman of Dartmouth College, Andover, N. H., and Mr. Leggett. Still another trip was with Mr. Gunnar Bjareby, also of Boston, Mass., Dr. Prien and Mr. Leggett. In addition, a number of trips were made with Mr. Leggett only.

Most of these trips were for the purpose of collecting crystals of epidote, garnet and staurolite. On the trip when Mr. Bjareby was along, I found a heavy white cleavable mineral of which he was given a piece. On my arrival home I analyzed it and found it was scheelite. Later Mr. Bjareby reported that it fluoresced blue under the cold quartz lamp. This is the first reported occurrence of scheelite in New Hampshire. The trip with Dr. Bannerman was for the sole purpose of finding more scheelite; none were found but if the locality could be visited at night and a portable cold quartz lamp used many specimens no doubt could be collected. The scheelite that was found occurred in an epidote-bearing chlorite-amphibole schist associated with quartz and calcite. Much of this rock occurs on or near Ore Hill so that the possibilities of finding more scheelite are good.

Almandite and staurolite crystals occur in abundance, of various sizes, in the ledges and drifts. Many fine specimens of epidote, garnet and staurolite crystals have been collected but good groups of epidote crystals are very scarce now.

The terrain of the area boasts of two low peaks or knobs as seen from the valley below. The north peak (Ore Hill) is the higher and on it have been found the large garnets staurolite and epidote crystals, a short distance from the nearby hotels. On this peak are a number of test holes and one vertical shaft. The iron

mine is on the south peak about one-quarter mile away.

Location

Ore Hill and the iron mine are situated in the southeastern extremity of the township of Lisbon (northern part of Grafton County) in the northwestern part of the state. The mine is about 12 miles southeast of Littleton and 34 miles southwest of Gorham. The nearest towns are Sugar Hill (about $1\frac{1}{2}$ miles north) and Franconia (about 3 miles northeast). Sugar Hill is a summer resort and has several large hotels.

The best approach to the mine is from Franconia. In Franconia cross the bridge on the road to Sugar Hill (see map) and continue until the small resort is reached (three miles to the southeast); bear right in Sugar Hill and continue for $1\frac{1}{2}$ miles more until a large abandoned white house is reached. This is as far as one can drive. Park here. On the left side of this house is a road (not good enough for a car) which leads up to the mine about $\frac{1}{4}$ mile away. It takes about 15 minutes to walk the distance. At the mine, there are a large number of small openings, test holes and the main pit. The test holes may be found by scouting around a bit.

History

About 1809 iron ore (magnetite) was found on Ore Hill and in 1811 a smelting furnace was erected in Franconia. This furnace was in continuous operation from 1811 to 1870 and produced between 250 and 500 tons of cast iron per annum. The mine employed ten men who were paid at the rate of \$15 per month and board. The ore cost \$6.00 per ton at the furnace (\$5.00 for mining, 50c for hauling, and 50c for breaking). The ore averaged 60% iron. The flux was limestone which was obtained from a nearby quarry situated on the west side of Sugar Hill and cost \$1.00 per ton. Charcoal was used as fuel. It was bought at the rate of \$4.00 per hundred bushels for hardwood charcoal and \$2.50 per hundred bushels for softwood charcoal. The aver-



Topography of the area around the iron mine. Some of the borders of the various geological formations are also shown.

Topography is by the U. S. Geological Survey. Geology is by the Division of Geological Sciences, Harvard University.

age daily product was $2\frac{1}{2}$ tons of iron. From 200,000 to 300,000 bushels of charcoal were consumed annually, taking about 160 bushels for each ton of iron made. The pig iron sold in 1840 at the furnace for 2c per pound, castings at 5c per pound, and bar iron at $5\frac{1}{2}$ per pound.

Geology

Ore Hill consists of the Ammonoosuc volcanics which are made up of fine grained biotite schist, amphibolites, amphibolite conglomerate, mica schist and micaceous quartzite (Oam on map). A little to the northeast of the mine an outcropping of quartz monzonite occurs (shqm on map), and is made up of a fine-grained pink gneissic rock composed of oligoclase, potash feldspar, quartz and biotite. To the south an outcropping of granodiorite gneiss occurs (bg on map)—this granodiorite is medium to fine-grained, composed of quartz, oligoclase-andesine, potash feldspar, biotite and a little muscovite and is usually foliated and strongly granulated. To the southwest an outcropping of gray hastingsite granite occurs (lg on map), and this is composed mainly of oligoclase, quartz, potash feldspar, hastingsite, hornblende and biotite. To the northwest, bordering the Ammonoosuc volcanics, a narrow outcropping of the Fitch formation occurs (sc on map) which contains marble, diopside-actinolite granulite, actinolite marble, actinolite-biotite schist, biotite-calcite schist, arenaceous marble, quartzite, arkose, and mica schist. Fossils are found in this formation at Littleton—the only fossil locality in New Hampshire.

The iron ore vein is from $3\frac{1}{2}$ to 8 feet wide, in gneiss and granite. The course of the vein in north 30° south 30° west and the dip is to the southeast 75° . The vein has been worked 660 feet in length and in places 150 feet deep. The mine was opened to daylight but was partially covered to keep out the rain. Many other small veins were discovered on Ore Hill and many small test holes and shafts have been made. The main vein was very irregular with many small branches shooting from it. Originally much expense was incurred by unskilled

labor searching for additional veins. In one place there is a gallery 120 feet long in solid granite without any indications of a vein of the ore. Near this another vein was cut in a northerly direction for a distance of 71 feet without discovering any ore.

MINERALOGY

The following is a list of minerals that has or can be found at the iron mine or near it.

ACTINOLATED - QUARTZ: Good actinolated-quartz has been found recently in amphibole schist. Some of it is light-green in color and some light-brown. Several good stones has been cut from this material.

AMPHIBOLE: (Hornblende): This mineral occurs as black to dark green sharp crystals imbedded in a granular chlorite schist, up to two inches in length, associated with oligoclase and pyrite and in magnetite as long black blades.

AMPHIBOLE (Tremolite): This light colored variety of amphibole is found associated with granular epidote and has altered to asbestos. The fibers are easily separable and have a dull luster.

ARSENOPYRITE: Formerly, good crystals of arsenopyrite had been found at this mine. Danaite, a variety of arsenopyrite containing about 6% cobalt, has been found in exceptional crystals. To my knowledge none has been found recently.

AZURITE: Small incrustations of azurite occur associated with chalcopyrite as an alteration and with magnetite.

CALCITE: Occurs as white cleavages of various sizes associated with epidote in amphibole schist. Several specimens collected contained inclusions of actinolite needles.

CHALCOPYRITE: Common on all the dumps in masses of various sizes.

CYANITE: Small crystals occur in the schist associated with magnetite.

EPIDOTE: Very common as bright green masses which are made up of small crystals. Many small bright green crystals occur in vugs in magnetite associated with garnets. Exceptional groups of terminated crystals have recently been found in vugs in amphibole schist associated

with quartz and calcite. These crystals were from 1 to $2\frac{1}{2}$ " long and about $\frac{3}{8}$ " in diameter, some nearly transparent and of a dark-green color. Many were twinned. Light-yellow transparent epidote in large crystals were reported from this mine at about 1850.

GARNET: Fine dodecahedrons of garnet are found in the schist and in magnetite. Some of these garnets are up to $1\frac{1}{2}$ " in diameter. Those imbedded in magnetite are usually small and transparent.

GREEN QUARTZ: An occasional light-green piece of quartz may be found on the dumps.

HEMATITE: Hematite occurs as black lustrous plates or crystals in fine-grained light-green epidote schist. It is not common now but an occasional specimen may be found.

ILMENITE: This mineral occurs imbedded in granular epidote and magnetite.

MAGNETITE: Is the most important ore found on Ore Hill. The ore is fine-grained, compact and of a dark blue-gray color. It is associated with granular epidote, garnet and hornblende. Some fine dodecahedral crystals are present and some rounded octahedrons also occur. Masses of magnetite as large as 50 pounds are common on the dumps.

MALACHITE: Same as for AZURITE.

MOLYBDENITE: Occurs in the surrounding schist in small quantity.

OLIGOCLASE: Occurs in fine-grained dark-green prochlorite as small transparent masses.

PREHNITE: Small light greenish rounded crystals occur associated with magnetite and epidote.

PROCHLORITE: Large dark-green fine-grained masses of prochlorite occur with small magnetite crystals and oligoclase.

PYRITE: Occurs as small masses imbedded in amphibolite schist and is quite badly altered.

QUARTZ: Small drusy crystals and large masses are very common. No large crystals were found.

SCHEELITE: This species was found

by the author two years ago in a loose block of amphibole schist associated with calcite and quartz. It fluoresces a light blue to almost white with the cold quartz lamp.

STAUROLITE: Staurolite crystals occur in abundance in the ledges and in the drift on Ore Hill. The crystals are simple and unaltered and are as large as 4" long and 1" in diameter. Several good right angle twins have been found. The most common color is brown but dark red crystals are abundant and are transparent on the edges.

STILBITE: One specimen was found as a seam between gneiss. It was about 8 x 9" and $\frac{1}{8}$ " thick, is white and radiated.

ZOISITE: A few small grayish-white masses have been found associated with epidote and is generally columnar in structure.

SOUTH CAROLINA'S MILLSTONE GERMAN

Mineralogist Traces Origin From Prussia.

Science often helps the antiquary and the historian. Recently a gentleman came to Samuel G. Gordon, curator of minerals of the Academy of Natural Sciences in Philadelphia, with a small fragment of stone. The man was interested, not in mineralogy, but in the history of millstones in Colonial America.

The chip had been taken from a millstone of an old mill in Union County, South Carolina. Mr. Gordon immediately identified the specimen as Hauynite, a basalt or lava rock, gray-blue in color, of volcanic origin, and found only along the Rhine, in Rhenish Prussia.

This clew from the mineralogist opened a most interesting field of research. In times when transportation by land and sea offered a most difficult problem, a stone weighing many hundreds of pounds had been transported from the Rhineland to the interior of the Carolinas. Some miller of times past knew of the superiority of this stone for the purpose of his mill, and it was procured at great effort and expense. It would seem that the stone also offered a clew as to the origin of the miller himself. Mr. Gordon stated that most of the "white" millstones of Colonial times came from England and France, and the trained mineralogist can readily identify them.

New York Sun—March 6, 1942

SOME VERMONT MINERAL LOCALITIES

By EVELYN WAITE

Crestwood, N. Y.

The following notes were inspired by the challenge to Vermont collectors which appeared in "New England Notes," in *ROCKS AND MINERALS* January, 1941. While the writer is not a native Vermonter, she has many Vermont ancestors, and it was while visiting some of her relatives in Windsor, Vt., that she received her first book on mineralogy, Dana's "Manual of Mineralogy and Petrography", 1881 edition, which had been used by her cousin at Dartmouth College some years before. On the way home from this visit, the writer stopped at the well-known talc mine near Chester, Vt., and obtained many fine specimens of lustrous green talc, actinolite, and the famous pyrite cubes and magnetite crystals, yes, *after* the latter two had been reported as very scarce.

Rochester, Vt.

Rochester is in the central part of the state in the northwestern part of Windsor County. It is about 35 miles northeast of Rutland, on Vt. Route 100. An old serpentine or "green marble" quarry, as the natives call it, is near Rochester. This quarry is situated high up in the hills about 2 miles northeast of the village center. While it has been closed for many years, due to the lack of demand for this once popular green stone, on the day in September in 1938 when the writer and Mr. H. C. Stevenson, of Tuckahoe, N. Y., first visited the locality, they were soon followed by a group of mining engineers. These engineers spent some time drilling and testing the deposits to determine whether or not the quarry was worth reopening.

The quarry was filled with water but the derricks and other machinery seemed to be in fair condition though rusty; the buildings on the property were in good shape.

Clambering over the piles of huge blocks of the green serpentine, from which lovely views of the surrounding mountains and valleys could be seen in

all directions, we found some nice specimens of the marble, some of it in thick sheets which were easily peeled off the huge blocks. Actinolite, of good quality, was also present, both of a glassy, bladed variety and of a finer, more silky type approaching asbestos and all of the same shade of green. Some of the masses of the finer variety were so weathered on the ends as to look like mud, which is exactly what we first took them to be until we tried to scrape some of it off with our chisel when we found them to be the ends of tightly packed crystals. These bands of actinolite were from 2" to 3" in width and made attractive specimens when broken out in chunks.

There was more or less pyrite present though mostly in flattened crystals but we did find some nice, small cubes in attractively veined verde antique serpentine. Although the writer has visited the locality a number of times nothing more of interest has been found except small quantities of magnetite.

Talcville, Vt.

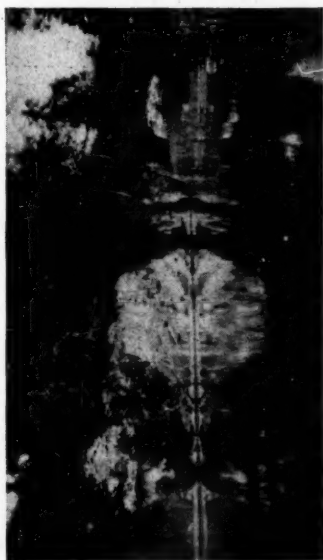
Near the southern limits of the village of Rochester is a little spot named on maps, "Talcville," though the actual place is hard to find as there seems to be nothing to suggest a village as one drives along. It was only by inquiries that the writer was assured that it was really the village of Talcville, so called because of a large talcmill which stood there, at the base of the mountain, prior to the flood of 1926 which had carried it away as well as the railroad which formerly served the little valley. If one looks sharply at the right moment it is possible to see the small remaining dumps and fragments of the light-colored talc rock. A number of attractive specimens of talc were found with the help of some little boys who lived nearby. The boys appeared eager to help and they also invited us to talk to their mother who told us that the mine was at least five miles back over the mountain and could be

reached in good weather by driving around and over the mountain and then walking in along a trail for a mile or so.

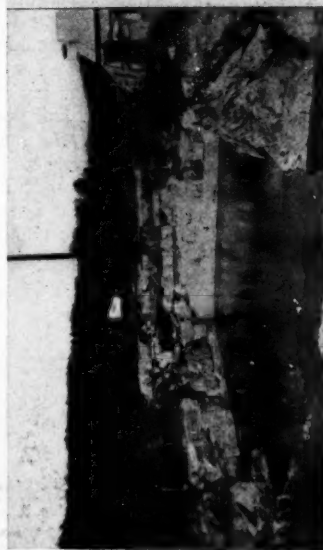
Though realizing that country people's miles are apt to be of varying lengths, the day was such a fine one that we were tempted to try to reach the mine. There were three of us in the party, the writer, her little niece Betsy Anne, and her grandmother, Mrs. J. W. Henckel of Colonial Heights, N. Y., who was also spending a few days with relatives in Rochester. While it was only April, the day was very warm which caused us to forget that it was still spring and a treacherous time for country roads. Before long, however, we had cause to remember it, to our dismay, for our car suddenly sank hub-deep in soft mud from which we were finally extricated with the aid of a kindly farmer who helped us out with shovel, sand and sacking. Continuing on our way but more cautiously we found the road getting steeper and wetter, so we decided to turn back, leaving the finding of the mine to a future date. We never returned as yet but we have attractive specimens of silvery-white and light green talc to show for our efforts as well as the memory of a lovely if exciting drive over the mountain.

South Wallingford, Vt.

On the way south from Rutland, on U. S. Route 7, there are several old marble quarries on the west side of the road. The first of these, 14 miles south of Rutland, reminds one of a huge Roman bath as you come upon it suddenly after pushing through bushes and climbing over huge blocks of sparkling white marble. Though the quarry is less than 50 feet from the highway, it is completely hidden by the bushes and the high dumps. No minerals were found here but there were a number of apple trees loaded down with luscious red apples which partly compensated us for the lack of specimens. The neighborhood boys, apparently, use the quarry as a swimming pool (it was full of water) as there was a diving-board wedged tightly between blocks of marble and an improvised raft anchored to the shore.



*White Marble Quarry
So. Wallingford, Vt. (1939)*



*Green Marble Quarry
Rochester, Vt. (1939)*

This water-filled quarry was about 150 feet long by 75 feet wide, rectangular in shape, and apparently produced a good quality, fine grained white marble. It is near South Wallingford in the southern part of Rutland County (in the southern part of the state).

Mt. Tabor, Vt.

Many more outcroppings of marble and limestone are to be seen along the highway (U. S. Route 7) but the most interesting to the writer proved to be the one just northwest of the sign-post reading "Mt. Tabor" (presumably the village or township of Mt. Tabor), 7 miles south of South Wallingford (21 miles south of Rutland).

The first thing to catch the eye here, besides the large, overgrown dumps of vari-colored limestones, are the huge, rusty kilns which have long since passed out of usefulness and which had been fed by a narrow gauge railroad running alongside the top of the nearest dump. Nothing else remains except a small white building southwest of the ruins, partly hidden by the huge dump.

The first time the writer visited the locality, in the fall of 1939, she foolishly started to investigate it without hammer or bag, leaving all in her parked car together with luggage, keys and purse, thinking there was no one about and not intending to get out of sight of the car, as the area did not look promising from the mineral standpoint. However, the lure of the unknown was strong and when she had climbed to the top of the dump

and found a narrow track leading to an opening in the hillside, curiosity prevailed and she ventured further, finding beyond the opening, the quarry itself, roughly circular, about 75 feet in diameter and filled with water.

Opposite the entrance, a thin waterfall came over the side of the quarry which at that spot was about 50 feet high and from the top of which the mountain went on and up, out of sight. To the right was another dump-pile in which was limestone of many colors, pink, orange, white, brown, yellow—with plenty of clear-white calcite crystals of various sizes and shapes; some of the crystals were milk-white in color. Here, also, was considerable taupe-colored flowstone cementing together many pebbles of quartz, schist, salmon-pink feldspar etc. Many of these specimens were so peculiar in appearance that the writer collected all she could carry (in her blue flannel coat in lieu of a bag) and then hurried back to the car somewhat worried over being so long out of sight of it. Vermont roadsides are apparently safe parking places for everything in the car was as it had been left except much hotter from the bright sun beating down on it.

It had been a hot and dusty scramble down that hillside with a heavy load of minerals but the writer felt more than repaid when on arriving home a goodly number of the flowstone specimens proved to be fluorescent showing a bright green against a deep raspberry under the Grenzig black-light bulb. Immediately



The author takes time out to view the landscape — Green Marble Quarry, Rochester, Vt. (Sept. 1939)

was made the resolution to revisit and reexamine the locality more thoroughly at the first opportunity.

It was August 29, 1940, when the writer made her promised visit. This time she locked the car and carried with her keys and knapsack though again forgetting hammer and chisel. Arriving at the water's edge of the quarry, she followed the narrow path to the right as far as the opposite wall where were found some nice groups of tabular calcite crystals (from tiny up to one inch in diameter) in crevices and on the undersides of overhanging slabs as well as in the clayey dirt below the wall where they had fallen when dislodged. A slab of limestone an inch or two thick would have clusters of large crystals on one side and many tiny ones on the other. Many of the larger crystals were etched and frosty in appearance and varied in color from clear through white, milky or stained orange or pink as was the limestone. While cleaning some of these slabs in the pool in trying to remove the sticky clay, the writer rubbed off several times a substance which felt like kid-skin or chamois and looked like dirty paper, without realizing what it really was. Later on, when exploring the top of the dump, she came upon several boulders containing patches and fragments of this very same paper-like substance (it was much in evidence). Then came the realization that it was mountain leather or mountain paper (a variety of amphibole). It was of fair quality and bleached white by long exposure to the sun; a number of specimens were secured and carefully wrapped to insure safe cartage.

A large boulder, 12" x 10" x 8" in size, was chipped down to about 12" x 6" x 5" (a more convenient size for carrying) and placed in the car. This was a compact pink and cream colored limestone with streaks of salmon-pink and purple hue. The underside of this specimen showed the tan flowstone and contained many tiny, rounded pebbles of clear and milky quartz, mica, green chlorite and feldspar. Some flowstone appeared also on the upper side of the rock which was covered mostly with masses

of tiny, flower-like crystals of calcite, looking almost like a head of cauliflower. This whole covering fluoresced a delicate light green under the black light. There were several patches of mountain leather on this specimen.

On passing the locality again in April, 1941, the writer noticed, due to leafless trees, that the dumps were far more extensive than was evident during the previous summer which makes her want to pay still another visit to the site.

Danby, Vt.

A short distance (less than a mile) from the previous locality of Mt. Tabor, one comes to huge piles of blocks of fine quality white marble, all freshly cut and ready for transportation, again on the west side of the road. According to the men working here, the stone was quarried at a large quarry about a mile back in the hills (to the west) and was brought down over a narrow gauge railroad. The stone was being shipped to Washington, D. C., for building the Jefferson memorial. The quarry is owned and operated by the Danby Marble Co. of Vermont.

The site made a lasting impression upon the writer by the beauty of the scene created by the huge gleaming white blocks of marble against the green of the hillside with the narrow gauge railway going straight up its side, apparently straight to the bright crescent moon which hung directly over its crest, at noon, on a brilliantly sunny September day!

There are many more interesting old quarries and mineral localities scattered about the Vermont mountainsides, in fact the writer has been told of garnet mines, brooks where gold is panned in the spring, and of a new green marble quarry near Windham. She looks forward to the days when time (and tires) will permit more trips of exploration not only in Vermont but also in the adjacent state of New Hampshire for her appetite has already been whetted by certain members of the Rocks and Minerals Association residing in Meredith, N. H., who during a very short acquaintanceship last summer very definitely put their state on her mineral localities map and promised more good things for the coming summer. But that is another story!

CHARLES WESSON HOADLEY

(AUGUST 10, 1878 — FEBRUARY 16, 1942)

It is with much sorrow that we have to announce the death of another noted mineralogist, Charles Wesson Hoadley, of Hartford, Conn. Mr. Hoadley passed away Monday afternoon, February 16th, 1942, at St. Francis Hospital in Hartford. Death was due to a heart attack along with other complications.

By profession, Mr. Hoadley was an architect. Before his retirement about 10 years ago, he was a member of the architectural firm of Hayes & Hoadley, of New York City. He was especially prominent for his Colonial architecture, having acquired this interest from an ancestor, David Hoadley, who was one of New England's most famous architects during Colonial days.

Mr. Hoadley was born in New York, the son of the late Russell Howland Hoadley and Alice Wesson Hoadley. He received his early education in Westminster, England, but was graduated from Columbia University in New York City.

It is for his interest in mineralogy that we know him best. He not only traveled widely, visiting localities all over the country, but he was a most liberal purchaser of specimens so that his collections (he had more than one) were among the best in the country. He was also a member of many clubs and societies as the Mineralogical Club of Hartford (a charter member and first treasurer), New York Mineralogical Club, Philadelphia Mineralogical Society, and the Rocks and Minerals Association. A few years ago he was especially interested in localities of all the eastern states from Maine to Florida and had a very fine

collection of minerals from them. We understand that his general collection, of which the localities collection was a part, was given to a friend in Philadelphia. At the time of his death, his new collection consisted entirely of crystals—a very fine one by the way. No disposition as yet has been made of this magnificent crystal collection.

Rocks and Minerals is heavily indebted to Mr. Hoadley. During the early days of the magazine, he was its most devoted supporter and friend. Not only did he give much valuable advice and encouragement to the Editor, but he prepared for the magazine a number of interesting articles and obtained for it a large number of subscriptions. It is said on good authority that in his zeal to help the magazine he would attend meetings of various mineral clubs, get up at the first opportunity to praise *Rocks and Minerals* and then demand the subscription from every member present—actually obtaining the money then and there. In many cases he personally paid for the subscriptions sent the magazine. Mr. Hoadley made many donations of money and specimens to *Rocks and Minerals*. He became a subscriber on December 20th, 1926, and never allowed his subscription to reach an expiration period—it was always extended for a period of years while it had months to go. His present subscription would not expire until April, 1946.

Besides his wife, Mrs. Janet Mae Hoadley, he is survived by two sons, Wells Hastings Hoadley and Charles Edward Hoadley, and a former wife, Mrs. Harriet Hastings Hoadley, all of Englewood, N. J.

IRON MINES NEAR BILBAO, SPAIN

One of the largest deposits of iron ore in Spain occurs near Bilbao, in Vizcaya province, in the northern part of the country; Bilbao is about 15 miles south of the Bay of Biscay. The ore minerals are the oxides, hematite and limonite, and they occur in Cretaceous limestone.

According to De Launay¹ the deposits were formed by the replacement of limestone by ores derived from ascending solutions. Where the solutions passed through sandstone or shale, formations which are less easily attacked, they form veins. The bodies have undergone metamorphism since their deposition.

Roesler² states that the main masses of ore are found southwest of Bilbao along the flanks of an anticline striking northwestward for 30 kilometers and are 2 to 8 kilometers wide (a kilometer equals 3,280.8 feet).

With depth, the ores change from oxides to the carbonate (siderite), a lower grade ore; this lower grade ore will have to be mined in greater amounts in the future as the deposits of surface material (hematite and limonite) are depleted. At present most of the mines are worked open-cut, but when siderite is worked in earnest, underground methods will have to be adopted.

A number of interesting minerals occur in the deposits and among them are:

Aragonite: Delicate, colorless, slender crystals on massive red hematite.

Calcite: Rounded masses of grayish-white platy crystals (sometimes large) on massive limonite; also on crystalline hematite.

Hematite: Massive, earthy, and concretionary—all red; and a grayish crystalline type.

Limonite: Massive, dark brown; a lower grade iron ore than the hematite.

Siderite: The lowest grade of iron ore. In the Bilbao district it occurs below the hematite and limonite.

1 De Launay, L., *Traite de Metallogenie: Gites mineraux et metalliferes*, vol. 2, pp. 380-381, Paris et Liege, 1913.

2 Roesler, Max. *Iron-Ore Resources of Europe*: U. S. G. S., Bull. 706, p. 33, Washington, D. C., 1921.

Collectors' Kinks

Musical Quartz Crystals

At the Schortmann Exhibition Sale held in New York City which lasted for three days, December 11th, 12th, and 13th, 1941, there were some half dozen or more very slender loose rock crystals from Minas Geraes, Brazil. Each crystal was 5" or more in length and so slender it looked like a lead pencil. These crystals turned out to be of more than passing interest after Jack Boyle, of the Children's Museum, Brooklyn, N. Y., called our attention to them. He would pick up each one by the tip and gently strike its other end with the back of a knife

blade. A musical tone would be produced! Jack said that the tones were not as good as he wished them to be or he would have taken every one of the crystals (they were not tagged up to then).

Jack told us that he knew of a collector who had quite a number of these musical crystals which were so arranged that a tune could be played on them.

Here is something new for collectors. If you have any slender crystals of quartz or any other mineral, test them for their musical abilities.

Clubs Affiliated With the Rocks and Minerals Association

ARIZONA

Mineralogical Society of Arizona

Geo. G. McKhann, Sec., 909 E. Willetta Street, Phoenix.

Meets at the Arizona Museum in Phoenix on the 1st and 3rd Thursday of each month.

CALIFORNIA

East Bay Mineral Society

Miss Marjory Welch, Sec., 3268 Central Avenue, Alameda.

Meets on the 1st and 3rd Thursdays of each month (except July and August), at 8:00 p.m., in the Lincoln School Auditorium, 11th and Jackson Sts., Oakland.

Northern California Mineral Society, Inc.

L. M. Demrick, Sec., 424 Ellis St., San Francisco.

Meets on the 3rd Wednesday of the month at the Public Library in San Francisco.

Southwest Mineralogists

Mrs. Pearl Arnold, Cor. Sec., 2132 W. 76th St., Los Angeles.

Meets every Friday at 8:00 p.m. at Manchester Playground, 88th and Hoover Sts., Los Angeles.

COLORADO

Canon City Geology Club

F. C. Kessler, Sec., 1020 Macon Ave., Canon City.

Meets on the 1st and 2nd Saturdays of each month at 9:00 a.m. in the High School Building, Canon City.

Colorado Springs Mineralogical Society

Lynn M. Hopple, Sec.-Treas., Motor Route 2, Colorado Springs.

Meets usually at the Lennox House, Colorado College Campus, Colorado Springs, on the 2nd Monday, of each month at 7:30 p.m.

CONNECTICUT

Bridgeport Mineral Club

Mrs. Julia Walker, Sec., 55 Eaton Street, Bridgeport.

Meets in the Bridgeport Public Library on the 3rd Monday of the month.

Long Hill Mineral Club

Eugene F. Robinson, Sec., R. F. D. No. 4, Box 237, Bridgeport.

Meets on the 4th Tuesday of each month at 8:00 p.m., in the Hawley Memorial Library, Long Hill.

Mineralogical Club of Hartford

Mrs. L. T. Goodrich, Sec., 51 Jerome Avenue, Bloomfield.

Meets the 2nd Wednesdays of each month, at 8:00 p.m., at 249 High St., Hartford.

New Haven Mineral Club

Mrs. Lillian M. Otersen, Sec., 16 Grove Place, West Haven.

Meets on the 2nd Monday of the month at the Y. W. C. A. on Howe St., New Haven.

IDAHO—OREGON

Snake River Gem Club

Mrs. A. Ingraham, Sec., Box 714, Ontario, Ore.

Meets alternately in Payette, Idaho, and Ontario, Oregon, (two small cities on the Snake River) on the 3rd Tuesday of every month.

ILLINOIS

Junior Mineral League

William Dacus, Sec., Morgan Park Junior College, 2153 W. 111th St., Chicago.

MAINE

Maine Mineralogical and Geological Society

Miss Jessie L. Beach, Sec., 6 Allen Avenue, Portland.

Meets last Friday of the month at 8 p.m., at the Northeastern Business College, 97 Danforth Street, Portland.

MARYLAND

Natural History Society of Maryland

2103 N. Bolton Street, Baltimore.

Office hours, Tuesdays and Fridays, 10:00 a.m. to 5:00 p.m.

MASSACHUSETTS

Boston Mineral Club

Mrs. Grace G. Dearborn, Sec., 40 Mt. Vernon St., Cambridge.

Meets on the 1st Tuesday of the month at 8:00 p.m., at the New England Museum of Natural History, 234 Berkeley St., Boston.

Connecticut Valley Mineral Club

Leo D. Otis, Sec., 12 Clark St., Westfield, Mass.

Meets on the 1st Tuesday of each month at 8 p. m. at various institutions in the Connecticut Valley.

MISSOURI

National Geologist Club

Mrs. D. P. Stockwell, Pres., Mt. Olympus, Kimmswick.

NEVADA

Reno Rocks and Minerals Study Club

Mrs. Rader L. Thompson, Sec., Box 349, R2, Reno.

Meets on the 1st Wednesday of each month, at 7:30 p.m., at the Mackay School of Mines, Reno.

Western Nevada Mineral Society

Miss Helen Griffing, Sec., 231 Mary St., Reno.

Meets on the 2nd Wednesday of each month at 7:30 p.m., at the State Bldg., Reno.

NEW JERSEY**Newark Mineralogical Society**

William E. Simpson, Sec. 308 Grove Street, Montclair.

Meets on the 2nd Sunday of the month at 3 p.m. at Junior Hall, corner Orange and North 6th Streets, Newark.

New Jersey Mineralogical Society

O. B. J. Fraser, Sec.-Treas., 27 Stoneleigh Park, Westfield.

Meets on the 1st Tuesday of the month at 8 p.m. at the Plainfield Public Library.

NEW MEXICO**New Mexico Mineral Society**

R. M. Burnet, Sec.-Treas., Carlsbad.

Society of Archaeology, History and Art Carlsbad.**NEW YORK****Chislors, The**

Miss Evelyn Waite, Sponsor, 242 Scarsdale Road, Crestwood, Tuckahoe.

Queens Mineral Society

Mrs. Edward J. Marcin, Sec., 46-30—190th Street, Flushing.

Meets on the 1st Thursday of the month at 8 p.m. at 8501 - 118th St., Richmond Hill.

OKLAHOMA**Oklahoma Society of Earth Sciences**

W. P. Smiley, Sec.-Treas., 229 W. Jefferson Street, Mangum.

Meets on the 2nd Tuesday of each month, at 7:30 p.m., at the Historical Museum, Mangum.

PENNSYLVANIA**Thomas Rock and Mineral Club**

Mrs. W. Hersey Thomas, Pres., 145 East Gorgas Lane, Mt. Airy, Philadelphia.

Meets on the 3rd Friday of each month, at 8:00 p.m., at the home of its president, Mrs. Thomas.

VERMONT**Mineralogical Society of Springfield**

Victor T. Johnson, Sec., 11 Elm Terrace, Springfield.

Meets on the 3rd Wednesday of each month at 8:00 p.m. at the homes of members.

WASHINGTON**Gem Collectors Club**

Mrs. Lloyd L. Roberson, Sec., 522 North 70th Street, Seattle.

Meets on the 1st and 3rd Tuesday of each month (except during the summer) at 8:00 p.m., at the Y. M. C. A.

Washington Agate and Mineral Society

Monroe Burnett, Sec., 802 S. Central St., Olympia.

Meets on the 1st Monday of the month, at 7:30 p.m. at the home of some member.

Wisconsin Geological Society

Paul Ziemke, Sec., 2032 W. Keefe Ave., Milwaukee.

Meets on the 1st Monday of each month at 8:00 p.m., at the Public Museum in Milwaukee.

Collectors' Tales

ZIRCON TRADED FOR A TEAM OF MULES

At a costume jewelry counter in a Los Angeles, Calif., department store, a number of very fine zircon gems, mounted in solid silver and 14 k. gold rings, were on display a few years ago. The saleslady always wore one of these rings in which the stone sparkled and shot out colors like the real thing.

One day a ranchman, from a remote desert area of California, came into the store and on passing the jewelry counter was attracted by the sparkle and glitter of "them those gold-n-silver-n-pretty trinkets" and asked the price of the "diamond" rings. The saleslady quoted the price of each, including the one she was

wearing, and stated that the stones were zircons and not diamonds. "Sold," said the ranchman, "but I want the one you are wearing and I do not care if they are imitation diamonds."

A few days later he returned and bought another. "I traded the other sparkler for a team of mules," said he, "and I am going after the wagon and harness."

We never discovered if he completed the deal. Perhaps he lies buried on the lone prairie where the deer and the antelope roam if the other fellow discovered how he had been swindled.

Walter S. Amos

Club and Society Notes

New York Mineralogical Club

American Museum of Natural History, New York, N. Y., Wednesday, February 18, 1942.

The meeting was convened at 8:10 P. M. Mr. Grahl distributed a questionnaire asking for suggestions for the spring excursion.

There being no other business, Mr. Trainer then introduced the speaker, Mr. Joseph D'Agostino, President of the New Jersey Mineralogical Society, a member of this club, and an Executive Engineer with R.C.A.

He spoke on "Quartz and Piezo—Electric Quartz Crystals" discussing the following phases of the subject:

- Phenomenon of Piezo electricity.
- Occurrence and mining of high grade quartz in Brazil.

- Testing and selection of crystals for radio use.

- Methods of cutting crystals for frequency control.

- Final testing and mounting of the crystals.

He also distributed illustrated copies of his talk.

The speaker was given a rising vote of thanks.

Mr. Northup reported an analysis of alkali metals in pink beryl from the Strickland quarry at Portland Conn., indicating that the term "Alkali-Beryl" is more suitable than "Caesium Beryl" for these specimens.

Mr. Downin exhibited Paterson, N. J., minerals mounted on small black blocks giving a very good appearance to average quality specimens.

It was announced that Mr. Jay T. Fox will address the Microscopical Society in this room on Friday, March 6th. His subject will be "The Microscope in The Field and Laboratory." The talk will be illustrated with photo-

micrographs of Minerals in full color.

The meeting was adjourned at 9:30 P. M. M. Allen Northup, Sec'y.

New Jersey Mineralogical Society

A regular meeting of the Society will be held on Tuesday, April 7th, at 8:00 p.m., in the Plainfield Public Library, Plainfield, N. J.

On Sunday, April 19th, an identification session for radio active minerals will be held at the Library at 2:30 p.m. All who plan to attend should bring their unknown radio active minerals to the meeting.

Newark Mineralogical Society

The 207th Meeting of the Society was held in the Brewster Room, Junior Hall, 468 Orange St., Newark, N. J., on Sunday, March 1st, 1942. The meeting was called to order by the President, Mr. Vincent Giordano, with 17 members and 8 guests present.

The program for the afternoon was a very interesting talk on fossils by Dr. Horace Elmer Wood, 2nd, Professor of Geology, at the University of Newark.

The program for the 208th Meeting, to be held at 3:00 p.m., on Sunday, April 5th, will be a talk by Dr. Daniel O'Connell on his recent trip to the West.

Queens Mineral Society

A regular meeting of the Society was held on March 5th at its headquarters (8501-118th St., Richmond Hill, N. Y.) at 8:00 p.m. The program consisted of a general discussion on the history of the Tilly Foster iron mine, Tilly Foster, N. Y., and the minerals of Portland, Conn.

American Museum Displays

In view of the intense interest in strategic minerals throughout the country, the American Museum of Natural History, in New York City, is featuring special exhibits of these minerals in their mineral hall. During the month of February, ores of tungsten (scheelites and wolframites) were displayed; during March chromium minerals (chromites) were shown.

In another case in the mineral hall is a most interesting display of jewelry. Rings, necklaces, bracelets and earrings are shown but instead of cut stones, loose gem crystals are used with each. One

set contains green chrysoberyl crystals from Minas Geraes, Brazil; another set contains pink rubellite crystals also from Minas Geraes, Brazil; still another set has emeralds from Colombia. The most beautiful set to our mind was the one in which green apatite crystals, each at least one inch long, from Durango, Mexico, were used. Large sections of pink rubellite crystals from San Diego County, Calif., were also used for one set. This unusual and very attractive display was made by Arnold Hoffman, Jeweler, of 452—5th Ave., New York City. After the exhibit is over the jewelry will be placed on sale in his store.

Bibliographical Notes

A new fossil crocodilian from Colombia: By Charles C. Mook

An interesting report on the fossil remains of a huge crocodilian found near Neiva, Colombia. pp. 55-58, 6 pls.

Issued by the U. S. National Museum, Washington, D. C., as Pub. 3122.

Bulletin of the National Speleological Society:

The January, 1942, issue of the National Speleological Society (an organization devoted to the scientific study and exploration of caves) is full of most interesting articles on caves. Explorations of caves, new discoveries in caves, cave fauna are some of the many subjects treated.

The bulletin contains 47 pages and costs 50 cents. Copies are obtainable from the National Speleological Society, 510 Star Building, Washington, D. C.

Geological Review:

This is the official journal of the Geological Society of City College of New York, New York City. The December, 1941, issue (12 pp.) had a number of short but interesting articles on geology. We were startled by the title of one article—Tin on Staten Island (part of New York City)—but it developed that chromite in the early days was mistaken for tin ore.

News Bulletin of the Mineralogical Society of Utah:

The December, 1941, issue of Utah's great mineralogical society is a most interesting publication. It contains a number of excellent articles, of which the main one, "Strategic Minerals of Utah," by Arthur L. Crawford, is 10 pages long. An unusually interesting article, "A home for the Utah Mineralogical Society," is by the president, Junius J. Hayes. In his article, Mr. Hayes, who is also a member of the Rocks and Minerals Association, describes the proposed building and illustrates it with some excellent drawings; he even suggests how the money is to be raised. The building will contain an auditorium on the first floor and a museum on the second floor.

Copies of the bulletin may be obtained from A. Reeves, Secretary, 628 Dooley Block, Salt Lake City, Utah. (Price per copy not given).

Michigan Geology Progress Bibliography:

By Duncan Stewart, Jr.

Those who are interested in the geology and mineralogy of Michigan will find this bibliography of much value and assistance. The bibliography contains 22 pages and has been issued by the Department of Geology and Geography, Michigan State College, East Lansing, Mich.

With Our Dealers

H. Goudey, of Jamestown, Calif., branches out in this issues from a classified into a ¼ page display ad. Among his offerings are two of unusual interest: dark green uvarovites and deep blue linarites. You do not run across these items every day.

The Yaquina Gem Shop, of Newport, Ore., is repeating its ad in this issue which did not appear last month. "Let the moss agate ad run in the April issue—it's bringing results O. K." they report.

A. J. Alessi, of Lombard, Ill., is featuring some cutting material in this issue. Better check up on your supply and if short rush him an order while his stock is still full.

Charles O. Fernquist, N. 4108 Walnut, Spokane, Wash., who is featuring Chinese carvings and cabochons in jade in this issue, has recently issued Price List No. 9 which is devoted to these specimens.

The Gem Exchange, Lake Bluff, Ills., advise us that they have obtained the autograph of Fred S. Young on 25 of the first copies of the new book "Art of Gem Cutting" now off the press. These copies will go to the first twenty-five orders, so if you wish an autographed first edition which will take its place with the best devoted to the amateur gem cutter, place your order at once.

MINERAL ODDITIES

Many localities in England, especially in Cornwall and Devonshire, have two or more names such as Wheal Unity, South Wheal Bassett, Huel Friendship etc.

Wheal and Huel are Cornish names for the word "mine." Huel was formerly used but it has been discontinued in preference of wheal. If the above three localities were in America they would be called Unity Mine, South Bassett Mine, and Friendship Mine.

CLASSIFIED ADVERTISEMENTS

WORLD'S BEST WANT AD. MEDIUM FOR MINERALS

Rate 5c per word; minimum 10 words. Remittance must accompany copy in all cases. Advertisers must furnish satisfactory references before their advertisements will be inserted. Forms close the 1st of every month.

BOOKS

Handbook For the Amateur Lapidary by J. H. Howard, 16 chapters covering all phases of gem cutting and polishing, 141 pp., 14 illus., price \$2.00. J. H. Howard, 504 Crescent Ave., Dept. R., Greenville, S. C.

How to Collect Minerals. By Peter Zodac. A guide book for the collector, 80 pp., 15 illus., \$1.00. Rocks and Minerals, Peekskill, N. Y.

History and Geology of the Royal Gorge, an illustrated souvenir booklet with maps and drawings locating 54 minerals for touring collectors. 50c postpaid. F. C. Kessler, Canon City, Colo.

Art of Gem Cutting—Just out. Latest and most complete book for the lapidary. \$2.00. Price list of American Gem Rough free. Sample sack 10c. Gem Exchange, Lake Bluff, Ill.

Fluorescence of Minerals by Chester Slawson. Excellent color plate of the Cranbrook display, plus text. 35c postpaid. Cranbrook Institute of Science, Bloomfield Hills, Michigan.

FOSSILS

Fossils, Minerals, Old Arms, Indian Beaded Trappings, prehistoric specimens, general line of curios. Lists 10 cents. N. E. Carter, Elkhorn, Wisc.

EXCHANGES

Will Exchange for Gems of like value or will sell below cost: Andalusite, 10 carats; Golden Sapphire 13 carats. John L. Schmitz, 861 East 35th St., Brooklyn, N. Y.

I WANT TO EXCHANGE MINERALS. CAN OFFER fayalite, forsterite, thorite, triphylite, heterosite, manganapatite for good specimens from other localities. Gunnar Bjareby, 147 Worthington St., Boston, Mass.

MINERALS

Pyrite Concretions: Strange shapes!—mushrooms, horseshoes, doughnuts, etc.—covered with fine large crystals. Sayreville N. J. Cleaned and coated to prevent oxidation. 2x2 to 4x6 inches at 35c to \$2.00—postage extra. M. Allen Northup, 10 Godet Place, Morristown, N. J.

Scott Rose Quartz Co.—Rose Quartz, Black Hills specimens, all kinds and colors; for rock gardens, cabinets, etc. Boxes: 24 specimens, \$1.00; 18 specimens, 50c; 15 specimens, 35c. Postage paid. Box 516, Custer, S. Dak. Send stamp for price list

Beautiful Opals—Direct from Australia. Lapidaries Parcel, 10 ounces cutting opal, (about 50 stones) \$10.00. Collectors specimens—good attractive parcels, \$5.00, \$10.00. Dozen small black opals \$5.00. 10 ounces small opal chips \$5.00. Illustrated catalogue No. 47 free. Natural History Books (thousands), lists free. Norman Seward, "Opal House," Melbourne, Australia.

Minerals, Fossils, Indian Relics, Books, Coins, Curios, Stamps, Old Glass. Catalogue 5c. Indian Museum, Osborne, Kansas.

Large dark purple amethyst crystals containing gold. 75c to \$1.50 postpaid. Monroe Mineral Store, Monroe, N. Y.

Top Quality Breccia Jasper—Strong, clean, excellent all other Jaspers for beauty. Suitable sizes for all purposes. 40c per lb. Slabs 8c per inch. Wholesale to dealers. Leo Ferris, San Miguel, Calif.

Franklin, N. J., minerals. Large stock of rare and fluorescent minerals always available for the collector, museum and school. John Albanese, P. O. Box 281, Newark N. J.

Millerite, Jelinite, Oolitic Limonite, Grunerite—Benedict P. Bagrowski, 1014 Vermont, Lawrence, Kansas.

Utah Jewels: New Calcites, 75c to \$5.00. Superb Quartz & Pyrites, 50c to \$5.00. Limited. The Berryman Menage, 412 East 9th South, Salt Lake City, Utah.

New England minerals for sale or exchange. Correspondence solicited. Rudolf C. B. Bartsch, 36 Harrison St., Brookline, Mass.

Five Different Ozark Mountain Cutting Materials 5 pounds for \$2.00, postpaid. John Jennings, Eureka Springs, Ark.

Cutting Agates, Woods, Minerals—Bishop's Agate Shop, North Bonneville, W. Va.

Chinese Carvings and Cabochons in Jade and other stones. Prices reasonable. Send for price list. Chas. O. Fernquist, N. 4108 Walnut, Spokane, Washington.

FLUORESCENT MINERALS

Franklin, N. J., Fluorescent Minerals—10 assorted specimens, average size 2" x 3", \$3.50. Send for list. John Albanese, P. O. Box 281, Newark N. J.

Virginia Calcite—Fluoresces and phosphoresces greenish-white. Phosphoresces even after exposure to ordinary light bulb. 1x1 @ 10c, 2x3 @ 55c, 3x4 @ \$1.10. Larger specimens are available. Postage extra under \$1.00. Kent C. Brannock, Box 313, V. P. I., Blacksburg, Va.

Fluorescent calcite mixed with sphalerite and galena. I have been mining specimens for ten years and this is the only calcite I have found which will fluoresce under the black bulb or quartz light and only a small quantity available. For sale or trade for good willerite or wernerite. J. A. Robertson, Box 105, Baxter Springs, Kansas.

Fluorescent Mexican Fluorspar—Prices on request. A. J. Wallace, 118 Lawnside Avenue, Collingswood, N. J.

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